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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,771	07/20/2000	Mark Ronald Sikkink	499.078US1	3666

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EXAMINER

PEIKARI, BEHZAD

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 09/22/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/619,771

Applicant(s) *pre*

SIKKINK ET AL.

Examiner

B. James Peikari

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Request for Information***

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

In response to this requirement, please provide the title, citation and copy of each publication that any of the applicants relied upon to draft the claimed subject matter. For each publication, please provide a concise explanation of the reliance placed on that publication in distinguishing the claimed subject matter from the prior art. In particular, the examiner requests a copy of the relevant portions of the document(s) used to prepare Figure 2 and Figure 3 of the present invention.

In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this

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requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

### ***Drawings***

2. This application lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings.

### ***Specification***

3. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drako et al., U.S. 5,371,877, in view of Rust et al., U.S. 5,699,530.

Drako et al. teach a dual bank memory system wherein each bank operates as a FIFO buffer for buffering data. Figure 2 also shows write control address logic (including, but not limited to, circuit 30) for storing data and write control timing logic (including, but not limited to, circuit 25) to selectively grant write access to the memory banks at a predetermine time. Furthermore, Figure 2 teaches read control logic to read data stored in the first and second banks (including, but not limited to, circuit 31).

As for determining where the data is to be stored by evaluating rising and falling edges of a strobe signal, this is how all signals work in data processing systems. Note the binary operation of the write bank select signal in Figures 3a and 3b.

As for determining that data will be stored in sequential memory addresses during sequential strobe cycles, this is how all FIFOs work. Note, for example, column 4, lines 13-16, or column 9, lines 7-10.

As for determining that an expected programmed time delay will occur (until the data can be read as valid, e.g.), determined independently for different units of memory, this was a fundamental procedure in memory circuit design. Note that columns 9, 10 and 11 describe the different timing delays that occur and, since they are expected, how the Drako et al. system deals with these delays by utilizing "hold" signals until the valid data appears and is ready to be read.

Drako et al. fail to specifically mention the use of write pointers to control write access to each FIFO bank. However, this is another example of memory design which was not only widely known, but fundamental to the operation of memory systems – especially stacked memories such as FIFOs. Nevertheless, this feature is explicitly taught by Rust et al., which taught a technology fully compatible with the Drako et al. system, to the extent that the write pointers were used to manage a dual bank FIFO buffer (note, e.g., Figure 4). The motivation to combine these two systems is within the Rust et al. reference itself, which explains the benefits of utilizing pointers in dual bank FIFO systems, namely reduced circuitry requirements (note column 3 of Rust et al., lines 8-24). It would have been obvious to one having ordinary skill in the art at that time the invention was made to incorporate the write pointer operation of Rust et al. into the system of Drako et al., since (1) it would have served as an efficient means for controlling the selection of various data references (such is always true of pointers) and (2) the specific implementation of the Rust et al. pointers required less circuitry.

As for implementing the combination above with a DDR SDRAM, this was not explicitly mentioned, but it is clear from that each of the prior art systems would have properly served as buffers for a variety of memory types. Consequently, the combination of the two would have served a variety of memory types. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the disclosed Drako et al./ Rust et al. combination as buffers to a DDR SDRAM since, as with any other memory type, it would have provided increased speed and efficiency, such as writing one FIFO bank while simultaneously reading the other.

***Allowable Subject Matter***

6. The following is a statement of reasons for the indication of allowable subject matter. The specification contains much that appears to be novel, especially with respect to the particular technical features that minimize the effects of the undefined tristate region in DDR SRAMs, wherein noise causes random strobe events. Note especially pages 7-13 of the specification. Rather, the claims appear to be directed to the features of the invention that were widely known in FIFO memory systems, such as sequential writing, using write pointers, managing time delays etc. Applicant is welcome to contact the examiner if further clarification is needed.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (703) 305-3824. The examiner is generally available between 11:00 am and 9:30 pm, EST, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim, can be reached at (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 746-7239 (Official communications)

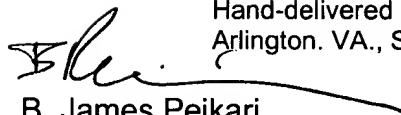
or:

(703) 746-7240 (for Informal or Draft communications)

or:

(703) 746-7238 (for After-Final communications)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

  
B. James Peikari  
Primary Examiner  
Art Unit 2186

9/13/03